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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/841,862	04/25/2001	Robert A. Wiedeman	900.0006USU	7241

41339 7590 08/23/2005

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ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 08/23/2005

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/841,862
Filing Date: April 25, 2001
Appellant(s): WIEDEMAN ET AL.

Anthony W. Karambelas
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 7/18/2005.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

Appellant's brief includes a statement that claims 1-5 and 14-18 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

6,522,658	Roccanova	2-2003
5,655,005	Wiedeman et al.	8-1997

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-5 and 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Forslow (USPN 6,608,832) in view of Roccanova (USPN 6,522,658).

3. Regarding claims 1 and 14, Forslow discloses a mobile telecommunications system and method, comprising: at least one user terminal (col. 6, lines 48-54); and at least one gateway bidirectionally coupled to a data communications network (col. 6, lines 60-64); said user terminal comprising a controller responsive to applications for selecting individual ones of a plurality of Quality of Service (QoS) modes for servicing different application requirements (col. 5, lines 41-60 and col. 6, lines 48-64).

Forslow does not expressly disclose that the mobile telecommunications system is mobile satellite telecommunications system which includes at least one satellite in earth orbit; however, Forslow does disclose that the invention can be used in a variety of mobile telecommunication systems (col. 8, lines 60-63). Roccanova teaches that it is important to discriminate and route packets based on QoS requirements in satellite-based communication systems since orbital

designs must accommodate the need for short round trip times required for voice data (col. 1, lines 32-36). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the mobile telecommunications system be a mobile satellite telecommunications system, which includes at least one satellite in earth orbit, since it is important to discriminate and route packets based on QoS requirements in satellite-based communication systems.

4. Regarding claims 2 and 15, Forslow in view of Roccanova discloses that the user terminal operates to communicate a request for a selected one of said QOS modes at least to said gateway, and in response the system allocates resources to accommodate the requested QOS mode (Forslow: col. 6, lines 3-15 and col. 6, lines 48-64 and Roccanova: col. 4, lines 1-41).

5. Regarding claims 3 and 16, Forslow in view of Roccanova suggests that a user is billed a greater amount for use of a QOS of higher quality (Forslow: col. 1, lines 41-62) where Forslow discloses that higher QoS requirements mandate less efficient use of resources.

6. Regarding claims 4 and 17, Forslow in view of Roccanova suggests that the QOS modes comprise a Highest Quality of Service mode, a Medium Quality of Service mode, a Best Available Quality of Service mode (Forslow: col. 5, lines 1-10), and a Guaranteed Data Rate Packet Data Service mode (Forslow: col. 1, lines 48-51).

7. Regarding claims 5 and 18, Forslow in view of Roccanova discloses that the controller selects one of a circuit switched or a packet switched mode of operation (Forslow: col. 5, lines 41-51 and col. 6, lines 48-54).

8. Claims 6, 7, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Forslow (USPN 6,608,832) in view of Roccanova (USPN 6,522,658) in further view of Wiedeman et al. (USPN 5,655,005).

9. Regarding claims 6 and 19, Forslow discloses a mobile telecommunications system and method, comprising: at least one user terminal (col. 6, lines 48-54); at least one gateway bidirectionally coupled to a data communications network (col. 6, lines 60-64); and a processor responsive at least to stored information for selecting a path through said network to a destination gateway for routing a communication to or from said data communication network and said user terminal (col. 6, lines 7-10) where the resource reservation approach allows a terminal to select a particular path to transmit the information, and for causing a description of said selected path to be transmitted from said user terminal to at least one node of the network (col. 6, lines 3-15 and col. 6, lines 48-64) where the terminal must inform the system of the selected path in order for the system to use that path.

Forslow does not expressly disclose that that the mobile telecommunications system is mobile satellite telecommunications system which includes a constellation of satellites in earth orbit; however, Forslow does disclose that the invention can be used in a variety of mobile telecommunication systems (col. 8, lines 60-63). Roccanova teaches that it is important to discriminate and route packets based on QoS requirements in satellite-based communication systems since orbital designs must accommodate the need for short round trip times required for voice data (col. 1, lines 32-36) where the satellite communication system uses a constellation of satellites (col. 1, lines 37-60). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the mobile telecommunications system be a mobile satellite

telecommunications system, which includes a constellation of satellites in earth orbit, since it is important to discriminate and route packets based on QoS requirements in satellite-based communication systems.

Forslow in view of Roccanova does not expressly disclose that the processor is responsive at least to stored satellite ephemeris information for selecting a path through said satellite constellation. Wiedeman teaches, in a satellite communication system, using satellite ephemeris information in order to select a path through a satellite constellation when the satellites move relative to the end user (col. 3, lines 12-26). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the processor be responsive at least to stored satellite ephemeris information for selecting a path through said satellite constellation in order to select a path through a satellite constellation when the satellites move relative to the end user.

10. Regarding claims 7 and 20, Forslow in view of Roccanova in further view of Wiedeman suggests that the processor is further responsive to stored gateway location information for selecting said path through said satellite constellation to said destination gateway (Forslow: col. 6, lines 3-15 and col. 6, lines 48-64 and Wiedeman: col. 3, lines 12-26) where the location of the gateway must be known in order to complete a path through that gateway.

(11) Response to Argument

Regarding claims 1 and 14, on pages 5-6 of the Brief, Appellants assert that "it is not at all clear from the recited passages relied upon by the Examiner that a mobile station and a user terminal are equivalent since they are not stated to be therein and there is no indication as used in the reference that they are." Examiner, respectfully, disagrees.

"During patent examination, the pending claims must be 'given their broadest reasonable interpretation consistent with the specification." M.P.E.P. § 2111 (citing to *In re Hyatt,* 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000)). "This means that the words of the claim must be given their plain meaning unless [appellant] has provided a clear definition in specification." M.P.E.P. § 2111.01 (citing to *In re Zletz,* 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989)). Since Appellants have not specifically defined "user terminal" in the specification, Examiner is required to give "user terminal" its broadest reasonable interpretation consistent with the specification by employing the "plain meaning" of the phrase. Here, Examiner has interpreted "user terminal" to be any device employed by an individual to connect to a network.

In Forslow, the inventive method is disclosed in the context of a mobile communication network containing "mobile hosts" (ref. 12) where the mobile hosts are employed by users to connect to the network (Figs. 1 and 2 and col. 2, lines 15-23). Forslow also expressly discloses that various applications run on the inventive "mobile station" (col. 6, lines 48-49), including voice, data, and multimedia applications (col. 5, lines 22-26). Forslow teaches that voice, data, and multimedia applications are of significant interest to end users of mobile networks (col. 2, lines 3-9). Therefore, Forslow discloses, or at the very least strongly suggests, that each mobile device is employed by a user to connect to the network. As such, Examiner asserts that Forslow's "mobile station" is equivalent to Appellants' "user terminal."

On pages 5-6 of the Brief, Appellants further assert that the portion of Forslow cited by Examiner "neither suggests, teaches or implies a gateway which is bidirectionally coupled to a data communication network as required in the instant claims, nor is there an explicit teaching of

one gateway bidirectionally coupled to a data communication network as required, for example, in element three of claim 1." Examiner, respectfully, disagrees.

First, Examiner submits that the gateway is coupled to the data communication network. As pointed out in paragraph 5 of the Final Rejection mailed 4/18/2005, Forslow discloses that the gateway "include[s] a mapper for mapping individual application flows to one of the circuit-switched network and the packet-switched network bearers" (col. 6, lines 60-64), which suggests that the gateway is connected, in some fashion, to the packet-switched network in order to permit the gateway to map flows to the packet-switched network. In addition, Examiner submits that Forslow further discloses in the primary embodiment that the gateway is a GGSN (col. 10, lines 42-45) where Figs. 1 and 2 clearly show a GGSN connected to a packet-switched network. Therefore, Examiner maintains that Forslow discloses that the gateway is coupled to a data communication network.

Second, Examiner submits that this coupling is bidirectional. The information flows handled by the gateway include types of flows that require bi-directional communication, such a voice communication and surfing on the world-wide web (col. 5, lines 37-51). While Appellants contend that "at the passages recited by the Examiner to support these contentions, there is a broad ranging discussion of a network technology transferring data only according to one type of transfer mechanism either circuit switched or packet switched," Appellants' contention seems directed specifically at col. 5, lines 37-41, which only discusses the prior art transfer technology, rather than the entire cited portion, namely col. 5, lines 37-51, which additionally discusses Forslow's invention. Further, Appellants' contention does not provide any reasoning as to why such "a broad ranging discussion" would preclude a bi-directional gateway. Therefore, Examiner

maintains that Forslow discloses a gateway, which is bidirectionally coupled to a data communication network.

On pages 5-6 of the Brief, Appellants additionally assert that "what is clearly described . . . are applications running on a mobile station or on an external network entity such as an Internet service provider specifying a quality of service, not a user terminal comprising a controller responsive to applications for selecting individual ones of a plurality of quality of service modes for servicing different application requirements as required by the fourth element of claim 1." Again, Examiner, respectfully, disagrees.

In paragraph 6 of the Final Rejection mailed 4/18/2005, Examiner asserted that a "controller" must be present because each application is assigned a quality of service mode. Appellants have responded that, nonetheless, Forslow has no suggestion of a controller. However, Forslow explicitly teaches that "[t]he mobile station . . . include[s] a mapper for mapping individual application flows to one of the circuit-switched network and the packet-switched network bearers depending on the quality of service requested for an individual application flow" (col. 6, lines 60-64, see also col. 14, lines 51-54). This mapper, as broadly defined, is a controller since the mapper controls the allocation of application flows to one of the circuit-switched network and the packet-switched network bearers. Therefore, Forslow discloses a user terminal (mobile station) comprising a controller (mapper) responsive to applications for selecting individual ones of a plurality of quality of service modes (packet-switched or circuit-switched) for servicing different application requirements (QoS requires specified by applications).

On pages 7-8 of the Brief, Appellants assert that "there is neither any suggestion, implication or teaching that Forslow, devoid of any mobile satellite telecommunication disclosure, may be combined with Roccanova which is directed to a method for discriminating and routing data packets in a satellite-based communication system which is not anywhere taught to be mobile in order to reject Appellants' instant claims." Examiner, respectfully, disagrees.

In response to Appellants' argument that there is no suggestion to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). Here, Forslow teaches that "the present invention can be implemented in any mobile communication system using other mobile data communications architectures and/or protocols" (col. 8, lines 60-63). Roccanova teaches that "[d]iscriminating and routing data packets based on QoS requirements is of particular importance in satellite-based communication system where orbital designs must accommodate the need for short round trip times required for voice data" (col. 1, lines 31-36). Roccanova also discloses a mobile terminal (col. 3, lines 6-11). Therefore, Forslow teaches that Forslow's invention can be implemented in any other mobile communication system, where Roccanova discloses a mobile communication system employing a satellite sub-system. In addition, Roccanova discloses that QoS routing is important in satellite systems where Forslow discloses a method for QoS routing. As such, Examiner maintains that Forslow and Roccanova are properly combinable.

On pages 7-8, Appellants further assert that "Roccanova is not concerned nor does it disclose, for example, at least one user terminal or a gateway bidirectionally coupled to a data communications network in combination with a controller responsive to applications for selecting individual ones of a plurality of quality of service modes for servicing different application requirements as required in claim 1." With respect to Appellants' arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). As outlined above, Forslow discloses "at least one user terminal [and] a gateway bidirectionally coupled to a data communications network in combination with a controller responsive to applications for selecting individual ones of a plurality of quality of service modes for servicing different application requirements." As such, Examiner maintains that the combination of Forslow and Roccanova discloses these limitations regardless of whether or not Roccanova, individually, teaches these features.

In addition, in the Final Rejection mailed 4/18/2005, Examiner stated in paragraph 7 that Examiner agreed that Roccanova does not disclose "at least one user terminal or a gateway bidirectionally coupled to a data communications network in combination with a controller responsive to applications for selecting individual ones of a plurality of quality of service modes for servicing different application requirements." However, upon a further reading of Roccanova, Examiner now asserts that Roccanova does disclose at least one user terminal (ref. 12) (col. 3, lines 6-11) and a gateway (ref. 14) bidirectionally coupled to a data communications network (col. 3, lines 6-23) in combination with a controller (modulator) responsive to applications for

selecting individual ones of a plurality of quality of service modes (indicated by use of first/second spread spectrum code) for servicing different application requirements (col. 4, lines 1-42).

Therefore, given the foregoing, Examiner maintains that the combination of Forslow and Roccanova teaches using a QoS system in combination with a satellite-based communication system, such that the limitations of claims 1 and 14 are obvious in view of the combination of Forslow and Roccanova.

Regarding claims 2 and 15, on pages 8-9 of the Brief, Appellants assert that the cited prior art fails to teach, suggest or imply "that the user terminal operates to communicate a request for a selected one of said QoS modes at least to said gateway." Examiner, respectfully, disagrees.

In Forslow, the mobile station select a bearer type to transmit data to the gateway based on QoS requirements (col. 6, lines 3-15 and col. 11, lines 3-55). In order to properly establish a connection with the gateway (GGSN), the mobile must request a new connection with the gateway (col. 20, lines 33-41) where the type of connection requested is an indication of the QoS requirements for the session. Thus, Examiner maintains that the mobile station must transmit some indication of the QoS mode (type of communication to be established) to the gateway in order to permit the gateway to correctly establish the desired connection.

In addition, Roccanova discloses that the user terminal (ref. 12) operates to communicate a request for a selected one of the QoS modes, as indicated by the type of spread spectrum code used to communicate a signal, to the gateway (ref. 14) in order to permit the system to allocate resources for the requested QoS mode (allocate resources on a particular satellite system) (col. 2,

lines 9-27 and col. 4, lines 1-42). Thus, while Forslow teaches communicating the QoS requirements for a connection to a gateway in a mobile communication system in order to properly allocate resources for a connection between the user terminal and the gateway, Roccanova teaches that it is also important to communicate the QoS requirements to a gateway in a satellite communication system in order to properly allocate resources for a connection through the satellite system.

In view of the foregoing, Examiner maintains that the limitations of claims 2 and 15 are obvious in view of the combination of Forslow and Roccanova.

Regarding claims 3 and 16, on page 9 of the Brief, Appellants assert that, in col. 1, lines 41-62 of Forslow, Forslow teaches that "charging is provided depending on the amount of data actually transmitted and on the quality of service of that transmission as opposed to a greater amount for the use of a QoS of higher quality as required by claim 3 alone." While Examiner agrees with Appellants' characterization of the cited prior art, Examiner disagrees that the cited prior art fails to teach the limitations of claim 3.

As Appellants admit, Forslow teaches "charging depending . . . on the quality of service of that transmission" (col. 1, lines 60-62). In order to charge a user based on the quality of service of a transmission, the price charged must vary according to the QoS of the transmission. In other words, the phrase "charging depending on the quality of service of a transmission" could encompass either of the following two scenarios: (1) charging a higher price for a higher quality of service and (2) charging a higher price for a lower quality of service, since both of these scenarios involves varying the price according to the QoS. However, Forslow further discloses that a higher QoS transmission for a particular user is obtained by "wasting communication

resources" as compared to a lower QoS transmission (col. 1, lines 41-62). Therefore, all else being equal, a telecommunications company will charge a higher price for guaranteeing a high QoS transmission since a high QoS transmission uses resources less efficiently as compared to a low QoS transmission. As such, Examiner maintains that the limitations of claims 3 and 16 are obvious in view of the combination of Forslow and Roccanova.

Regarding claims 4 and 17, on pages 9-10 of the Brief, Appellants assert that Forslow does not disclose a highest quality of service mode, a medium quality of service mode, a best available quality of service mode, and a guaranteed data rate packet data service mode, even though Forslow discloses three classes of QoS data service, namely deterministic, statistical, and best effort, in addition to disclosing the use of circuit switched communications. Again, Examiner, respectfully, disagrees.

As Applicant admits, Forslow discloses at least three classes of service: deterministic, statistical, and best effort (Forslow: col. 5, lines 1-6). The Authoritative Dictionary of IEEE Standards Terms defines "deterministic" as "pertaining to a process, model, or variable whose outcome, result, or value does not depend on chance." Therefore, a "deterministic" quality of service guarantees a certain level of bandwidth at any given time since a user's bandwidth does not "depend on chance." Thus, a "deterministic" quality of service, as broadly defined, is a "highest quality of service mode."

Additionally, Newton's Telecom Dictionary defines "statistical multiplexing" as

> a multiplexing technique that differs from simple multiplexing in that the share of the available transmission bandwidth allocated to a given user varies dynamically. In other words in statistical multiplexing, a channel is assigned only to devices . . . which are active and seeking to communicate.

Therefore, a "statistical" quality of service does not guarantee a certain level of bandwidth at a given time to a user since a user's given bandwidth will depend on various factors. Thus, a "statistical" quality of service, as broadly defined, is a "medium quality of service mode."

Further, Newton's Telecom Dictionary defines "best effort" as "a term for a Quality of Service (QoS) class with no specified parameters and with no assurances that the traffic will be delivered across the network to the target device." Therefore a "best effort" quality of service does not guarantee a bandwidth to a transmission, or even that the transmission will reach its destination. Thus, a "best effort" quality of service is best available quality of service mode.

Finally, Forslow discloses that data can be transferred over a packet-switched bearer or a circuit-switched bearer, where "because a circuit-switched channel is not shared with other users, the user is essentially guaranteed a certain quality of service" (col. 1, lines 48-50). Forslow further discloses that the QoS parameters for a packet-switched bearer are different from the QoS parameters for a circuit-switched bearer and include parameters, such as peak throughput, burst size, and delay class (col. 10, lines 8-14) where it is implicit that these parameters can vary from user to user. Thus, Forslow suggests that the packet-switched bearer supports multiple QoS levels, such as deterministic, best effort, and statistical, since the packet-switched bearer carries multiple users using a variety of QoS parameters. Forslow also suggests that the circuit-switched bearer only offers a single QoS level, namely a "guaranteed" quality of service, since the bearer is not shared by any other user. Thus, the circuit-switched bearer, as broadly defined, supports only a "guaranteed data rate packet data service mode."

For the foregoing reasons, Examiner maintains that the limitations of claims 4 and 17 are obvious in view of the combination of Forslow and Roccanova.

Regarding claims 5 and 18, on pages 10-11 of the Brief, Appellants assert that the cited prior art does not disclose "that the controller selects one of a circuit switched or a packet switched mode of operation." Examiner, respectfully, disagrees. For the reasons given above, Examiner maintains that Forslow discloses a controller (mapper) that selects one of a circuit switched or packet switched mode of operation (Forslow: col. 5, lines 41-51 and col. 6, lines 48-64).

Regarding claims 6, 7, 19, and 20, on pages 12-14 of the Brief, Appellants assert that Forslow does not teach, suggest or imply "a processor responsive at least to stored information for selecting a path through said network to a destination gateway for routing communication to or from said data communication network and said user terminal." Examiner, respectfully, disagrees. In col. 6, lines 7-10, Forslow discloses that the communication path between the mobile terminal and the gateway may be reserved in advance. In order to communicate over a reserved path, it is inherent that the mobile terminal must have information stored for selecting the reserved path through the network. Thus, Examiner maintains that the cited prior art discloses "a processor responsive at least to stored information for selecting a path through said network to a destination gateway for routing communication to or from said data communication network and said user terminal."

Applicant further asserts that Forslow does not teach, suggest, or imply satellite ephemeris information or even a constellation of satellites and that Roccanova does not teach, suggest, or imply stored satellite ephemeris information for selecting a path through said satellite constellation to a destination gateway. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the

rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Examiner agrees that Forslow and Roccanova does not disclose using satellite ephemeris information for selecting a path through a satellite constellation to a destination gateway, which is why Examiner relies upon Wiedeman to teach these limitations. Therefore, Examiner submits that the *combination* of Forslow, Roccanova, and Wiedeman teaches the limitations of claims 6 and 19, even if each individual reference may not teach all of the claimed limitations, when viewed in isolation.

Additionally, Applicant asserts that Wiedeman does not teach using stored satellite ephemeris information for selecting a path through said satellite constellation to a destination gateway. Examiner, respectfully, disagrees. Wiedeman discloses "effecting communication between a terrestrial wireless telephone end user transceiver apparatus and a terrestrial communications link via ... a succession of relays through other orbiting satellites wherein the relay station (satellite) is in motion relative to the end user transceiver apparatus and to the terrestrial communications link, wherein the ground-based equipment makes the ultimate decision on linking based on satellite ephemeris information and end user information" (col. 3, lines 12-26). The Authoritative Dictionary of IEEE Standards Terms defines "ephemeris" as "the position vector of a satellite or spacecraft in space with respect to time." As such, Wiedeman discloses using stored satellite position information for making an "ultimate decision on linking" a terrestrial user to a satellite constellation. Since the satellites are in motion relative to the ground devices and since the ground devices use the position data of the satellites in order to link to the satellites, Wiedeman discloses, or at the very least suggests, that the satellite ephemeris

data is used for selecting a path through a satellite constellation to a destination gateway, where a path through the satellites is defined by the satellite to which a terrestrial node can link since this satellite will be the start of the path.

Given the foregoing, Examiner maintains that the limitations of claims 6, 7, 19, and 20 are obvious in view of the combination of Forslow, Roccanova, and Wiedeman.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Daniel J. Ryman
Examiner
Art Unit 2665

August 18, 2005

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